

Date: Sat, 10 Apr 93 20:00:30 PDT
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #446
To: Info-Hams

Info-Hams Digest Sat, 10 Apr 93 Volume 93 : Issue 446

Today's Topics:

 (HT) battery supplier recommendations?
 10m is dead?
Announcement - ARRL Information Mail Server (info@arrl.org)
 ARRL living in the past?
 CB conversions
 Crystal Catalog
 D-C Receivers: info???
Daily Solar Geophysical Data Broadcast for 09 April
 I want to start out..
 Q values. (2 msgs)
 STS-56 Keplerian Elements (Orbit #39)
 Summary: Using 75 Ohm Hardline (2 msgs)
 Telemetry receivers
 What should DTMF deviation be set to? (3 msgs)

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Thu, 8 Apr 1993 13:46:02 GMT
From: usc!zaphod.mps.ohio-state.edu!uwm.edu!linac!att!att!allegra!ulysses!
ulysses.att.com!wmb@network.UCSD.EDU
Subject: (HT) battery supplier recommendations?
To: info-hams@ucsd.edu

It's time to buy another nicad battery pack for my Yaesu FT-530,
and I'd like to know which of the suppliers (e.g., W&W, Yost, Periphex)
provide the best quality (at the best price, of course..) and which

to avoid.

Thanks,

Bill Brelsford, K2DI
wmb@joplin.att.com

Date: 10 Apr 93 09:21:37 GMT
From: pa.dec.com!nntpd2.cxo.dec.com!nuts2u.enet.dec.com!little@decwrl.dec.com
Subject: 10m is dead?
To: info-hams@ucsd.edu

Well I don't know if I'd call it dead. Perhaps it's expiring? But I tried to work 9G1AA and F040K today on 10 SSB, and heard a ZL2 and saw spots for V73C and a few others. Not bad pickins for a dead band.

73,
Todd
N9MWB

Date: 10 Apr 93 13:00:07 EDT
From: psinnntp!arrl.org@uunet.uu.net
Subject: Announcement - ARRL Information Mail Server (info@arrl.org)
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, khj@cs.appstate.edu (Kenneth Jacker) writes:
>ehare@arrl.org (Ed Hare - KA1CV) writes:

>
>>The American Radio Relay League (ARRL) has a useful service -- the ARRL
>>Information Mail Server. This is an automated mail server that let's you
>>access many of our information files, containing information about various
>>facets of Amateur Radio. You can retrieve any or all of these files by
>>sending an email message to info@arrl.org here at ARRL HQ.

>
>I have sent two separate requests for additional information to the ARRL
>Server. So far I have received *nothing* in return.

>
>Anyone else have any luck?

We've been having some problems in the past few days with our mail handling. I'm working on clearing the backlog of 300+ INFO responses (over 4 MB) now. Longer term, we're evaluating options to improve the reliability and service provided by our Internet connection. I apologize for any frustration caused by the delays.

It'll all spit out eventually!

Jon Bloom, KE3Z		jbloom@arrl.org
American Radio Relay League		Justice is being allowed to do whatever
225 Main St.		I like. Injustice is whatever prevents
Newington, CT 06111		my doing so. -- Samuel Johnson

Date: Sat, 10 Apr 1993 22:12:33 GMT
From: netcomsv!netcom.com!jfh@decwrl.dec.com
Subject: ARRL living in the past?
To: info-hams@ucsd.edu

gregs@slcsrv.slac.stanford.edu wrote:

>This is NOT about civil rights. Good issue, but wrong context. This is about
>whether you think and approve/disapprove of the ARRL not allowing LARC to
>have an ad run in their magazine. No civil rights were violated.

I believe that the lawsuit the national LARC filed against the ARRL was based on Connecticut anti-discrimination laws. If that's true (and someone can correct me if I'm not - I've heard all this stuff second-hand at best), then maybe some civil rights, or at least legal rights, were violated.

--

Jack Hamilton KD6TTL jfh@netcom.com PO Box 281107 SF, CA 94128 USA

Date: 11 Apr 93 02:52:49 GMT
From: news-mail-gateway@ucsd.edu
Subject: CB conversions
To: info-hams@ucsd.edu

To answer the requests for CB to 10 meter conversion plans, etc:
April ed. of CQ has this ad. : CBC International, Lou Franklin/K6NH,
P.O. Box 31500cq, Phoenix, AZ 85046....they offer a catalog for \$2.

Date: 1 Apr 93 22:16:39 GMT
From: usc!zaphod.mps.ohio-state.edu!uwm.edu!ogicse!hp-cv!hp-pcd!hpls!a!
tomb@network.UCSD.EDU
Subject: Crystal Catalog

To: info-hams@ucsd.edu

richard@alaska.et.byu.edu (Richard B. Christensen) writes:
>Are there any crystal catalogs out there?

Yes. Contact International Crystal Manufacturing in Oklahoma or JAN Crystals in Florida. I believe each has a 1-800 number. Others probably have catalogs as well. International's is more like separate flyers for each frequency range.

Date: 31 Mar 93 18:22:21 GMT
From: usc!wupost!uwm.edu!logicse!hp-cv!hp-pcd!hplsla!dickrb@network.UCSD.EDU
Subject: D-C Receivers: info???
To: info-hams@ucsd.edu

Greetings!

I see that you are interested in a simple direct conversion receiver and a possible transmitter companion. Well, I have built a simple DC tranceiver in the past and had LOTS of fun with it using 100mW output on 80 meters using a dipole at 35 feet. I was able to make about 8 qso's out of every ten attempted and usually had 5x9 reports over 500 mile paths. Wes Hayward was sufficiently interested in the project that he volunteered to help me write an article for it in QST (see Nov 1968 QST). You should be able to build such a unit for \$15 and learn a lot while doing it too.

If you want any help, let me know.

73,

Dick Bingham W7WKR

Date: 10 Apr 93 19:35:08 GMT
From: news-mail-gateway@ucsd.edu
Subject: Daily Solar Geophysical Data Broadcast for 09 April
To: info-hams@ucsd.edu

!!BEGIN!! (1.0) S.T.D. Solar Geophysical Data Broadcast for DAY 099, 04/09/93
10.7 FLUX=135.5 90-AVG=133 SSN=134 BKI=3441 2444 BAI=020
BGND-XRAY=B4.0 FLU1=2.1E+06 FLU10=1.6E+04 PKI=3332 1435 PAI=017
BOU-DEV=029,044,045,008,011,050,045,043 DEV-AVG=034 NT SWF=00:000
XRAY-MAX= C2.1 @ 2126UT XRAY-MIN= B2.6 @ 0746UT XRAY-AVG= B5.9

NEUTN-MAX= +003% @ 0925UT NEUTN-MIN= -002% @ 1455UT NEUTN-AVG= +0.4%
PCA-MAX= +0.1DB @ 2330UT PCA-MIN= -0.4DB @ 1450UT PCA-AVG= +0.0DB
BOUTF-MAX=55418NT @ 2321UT BOUTF-MIN=55352NT @ 1749UT BOUTF-AVG=55394NT
GOES7-MAX=P:+129NT@ 1938UT GOES7-MIN=N:-011NT@ 0632UT G7-AVG=+084,+041,+009
GOES6-MAX=P:+142NT@ 1725UT GOES6-MIN=N:-101NT@ 2256UT G6-AVG=+095,-011,-054
FLUXFCST=STD:135,130,125;SESC:135,130,125 BAI/PAI-FCST=025,030,010/030,035,015
KFCST=3335 4343 4445 5443 27DAY-AP=024,016 27DAY-KP=4533 3553 3233 4334
WARNINGS=*SWF
ALERTS=
!!END-DATA!!

NOTE: The Effective Sunspot Number for 08 APR 93 was 63.0.
The Full Kp Indices for 08 APR 93 are: 2+ 3- 4+ 5- 3+ 3+ 3+ 3-

Date: Sat, 10 Apr 1993 18:59:19 GMT
From: usc!howland.reston.ans.net!ux1.cso.uiuc.edu!news.iastate.edu!
tarjan@network.UCSD.EDU
Subject: I want to start out..
To: info-hams@ucsd.edu

SO..

What I want to do is get a handheld HAM radio system.. possibly even
a mobile..

I want to be able to talk on it .. but also I want it for emergencies..

I dont know wether I should use 2m or 440mhz or what..
I also dont have a license.. (yet) what type of license do I need for either
of these classes?

And finally I read somewhere something about being able to use a phone through
HAM.. I would appreciate info on that.. (Dont tell me I cant call for pizza
on it.. I understand. NO BUSINESS.. I just want that for emergencies!)

Thanks alot!!!!
(also I am going ot be in the DC area.. so info on calling should be related
to there.. if possible..)

Thanks!

Scot Kight
tarjan@iastate.edu

--

-----BEGIN PGP PUBLIC KEY BLOCK-----

Version: 2.1

mQCNaiSvfsAAAAEEANedvpkX74z4wwGW9f1M10bhLHL6UNb08mpH0q1UIxaKsfYt

Date: 2 Apr 93 17:08:10 GMT
From: usc!wupost!uwm.edu!ogicse!hp-cv!hp-pcd!hpls1a!tomb@network.UCSD.EDU
Subject: Q values.
To: info-hams@ucsd.edu

dstock@hpbqmoqa.sqf.hp.com (David Stockton) writes:

> I was originally taught that the best definition of Q was
>
>
> Q = the ratio of the stored energy in a resonating system to the
>energy lost, per cycle, by that system.

Hats off to David for posting the most useful definition of Q, IMHO,
in terms of real understanding. However, a small nit: multiply the
above by 2pi, or state it as energy lost per radian.

> This version leads to all the old familiar versions but neatly
>sidesteps parallel or series lossy elements, and whether the loss is
>into bona-fide resistance or into imaginary term of dielectric constant,
>or even radiated.

And no longer even depends on the "circuit" being electrical: Quartz
resonators certainly have Q values, as do pendulums, cavities, tubs filled
with water, violin strings, flutes, tuning forks, But a flywheel
doesn't (at least not as a flywheel) because it's not a resonating system.
(But a flywheel and a torsion spring, like in a mechanical watch, does.)
Note that some resonators have more than one possible mode of resonance;
each can have its own Q (e.g., the Q of the fundamental of a quartz
crystal, or the Q of the third overtone, etc.)

Cheers,
Tom

Date: 29 Mar 93 17:39:25 GMT
From: usc!wupost!uwm.edu!ogicse!hp-cv!hp-pcd!hpls1a!tomb@network.UCSD.EDU
Subject: Q values.
To: info-hams@ucsd.edu

dadams@cray.com (David Adams) writes:

>Could someone explain what a Q value is, pertaining to a tank circuit?

Though I've seen two replies here, I thought perhaps neither really answered this clearly.

A tuned circuit - tank - is used to store energy. A tank with no losses could store energy for an infinite length of time. The energy "sloshes back and forth" between the magnetic field of the inductor and the electric field of the capacitor: voltage and current.

If the current flows through any series resistance, or if the voltage appears across any parallel resistance, energy is lost. The Q is the ratio of energy stored to energy lost per cycle, times 2π . So the more losses, the lower the Q. No losses makes for infinite Q. But no losses also means that all the energy must be at exactly the resonant frequency of the tank; the bandwidth is infinitely narrow.

The parts you use to build the tank will have losses, so the tank "just sitting there" has a finite Q. Typically this will be between 100 and 1000 for HF and VHF tanks. But if all the losses were in the tank circuit itself, then it wouldn't be very useful for much besides a space heater. So, you typically put an additional load-- a "loss" as far as the tank is concerned-- on it. For example, you might connect a transmission line off to an antenna to a transmitter tank. You arrange it so most of the "loss" is power sent to the antenna, and that drops the Q. If the ratio of bare tank Q to fully loaded Q is 10:1, then 1/10 the power will be dissipated in the tank losses and 9/10 in the load (eg, radiated by the antenna if it's a lossless antenna -- another topic ;-).

If you have to worry about losses in the tank components, why mess with a tank at all? Well, it can be a convenient way to transform from the antenna impedance to the appropriate load impedance for the transmitter output, and it provides some rejection of unwanted signals like harmonics of the transmitter frequency. The higher the Q (loaded Q), the better the rejection of signals off the resonant frequency of the tank. However, the higher the loaded Q, the more touchy the tuning: if anything changes (due to temperature instabilities, or operator-changed frequencies), you may have to retune. So there are several factors affecting what Q is "optimum" for a tank.

>Also I thought I knew how to calculate the resonant frequency of a
>tank circuit given the inductance and capacitance, but I missed
>the question on the exam, so perhaps someone could address that.
>How does the answer change if the capacitor and inductor are

>in series rather than in parallel?

It's possible to give different definitions for resonant frequency: the frequency of maximum (magnitude) response, the frequency of zero phase shift, the frequency at which the inductive and capacitive reactances are the same ... These all collapse to the same answer as the Q increases to infinity, but are different from each other otherwise. C and L in series or in parallel can only be differentiated from each other if there are other parts in the circuit: if it's just L and C, then parallel and series are identical. If there is an explicit loss element (resistance) in the circuit, it causes a Q lower than infinity. Is it a series R or a parallel R? The lower the series R, the higher the Q; the _higher_ the parallel R, the higher the Q.

This leaves some things unexplained, but at this point, I think pictures in a book would be better than words...

Date: Sat, 10 Apr 1993 21:05:39 GMT
From: netcomsv!netcom.com!astroman@decwrl.dec.com
Subject: STS-56 Keplerian Elements (Orbit #39)
To: info-hams@ucsd.edu

STS-56 Elset GSFC-010 10 Apr 93

STS-56
1 22621U 93 23 A 93100.61115846 0.00060906 00000-0 17653-3 0 105
2 22621 57.0037 167.8988 0004603 270.8271 89.2279 15.92485654 392

Date: 29 Mar 93 16:49:13 GMT
From: usenet.coe.montana.edu!logicse!hp-cv!hp-pcd!hplsla!tomb@decwrl.dec.com
Subject: Summary: Using 75 Ohm Hardline
To: info-hams@ucsd.edu

Oh, dear. I didn't get in on the first round of this use of 75 ohm cable question. But in reading the summary, I didn't see mention of a cute trick I saw in the RSGB VHF manual: getting a 1/4-wave section of line of $Z = \sqrt{Z_1 Z_2}$ can be difficult sometimes, but you surely have some line of each of the two impedances you wish to transform between. If you arrange sections of the right lengths, you can do it as

Z1-line short-section-of-Z2 short-section-of-Z1 Z2-line

Look up the reference for details about lengths. I recall about 0.18 wavelengths for each of the short sections, for 50 ohm to 75 ohm matching.

I also didn't notice mention that a matching section which is built with a tapered impedance (e.g., tapered center conductor or even two or more short sections of in-between impedance line) is much more broadband than a simple 1/4-wave section.

Date: 30 Mar 93 16:51:55 GMT
From: usc!wupost!uwm.edu!logicse!hp-cv!hp-pcd!hplsla!tomb@network.UCSD.EDU
Subject: Summary: Using 75 Ohm Hardline
To: info-hams@ucsd.edu

Yesterday, I wrote:

>of a cute trick I saw in the RSGB VHF manual: getting a 1/4-wave
>section of line of $Z = \sqrt{Z1 \cdot Z2}$ can be difficult sometimes, but you
>surely have some line of each of the two impedances you wish to
>transform between. If you arrange sections of the right lengths,
>you can do it as
>
> Z1-line short-section-of-Z2 short-section-of-Z1 Z2-line
>
>Look up the reference for details about lengths. I recall about
>0.18 wavelengths for each of the short sections, for 50 ohm to
>75 ohm matching.

So my memory isn't so good (two sure signs of getting old: a failing memory, and I can't remember the other one... ;-). It's 0.081 wavelengths for the 50 <---> 75 ohm transformation, and in general,

$$\cot^2(\theta) = 1 + Z1/Z2 + Z2/Z1$$

where theta is the length of each short sections. If you're working in degrees, divide theta by 360 to get number of wavelengths (taking into account the propagation velocity of each line). Again, this is from the RSGB VHF-UHF manual.

Date: Sun, 11 Apr 1993 01:13:00 GMT
From: usc!wupost!uwm.edu!ux1.cso.uiuc.edu!milo.mcs.anl.gov!locke.mcs.anl.gov!olson@network.UCSD.EDU
Subject: Telemetry receivers
To: info-hams@ucsd.edu

My wife recently started an internship at a raptor rehabilitation clinic. The clinic wants to acquire telemetry equipment in preparation for their acquisition of a peregrine falcon (which they don't want to lose :-). The transmitters are affordable (\$100 each) but the receivers go for about \$800, out of their budget. It seems that it should be relatively straightforward to either construct a receiver or modify a standard receiver for telemetry purposes.

Is anyone familiar with this stuff? The transmitters operate at 151, 173, or 216 MHz, if that is a help.

Thanks in advance for your assistance.

--bob

Date: 30 Mar 93 20:24:49 GMT
From: usc!wupost!uwm.edu!logicse!hp-cv!hp-pcd!hplsla!richw@network.UCSD.EDU
Subject: What should DTMF deviation be set to?
To: info-hams@ucsd.edu

I was listening to a conversation on a local repeater yesterday which raised some questions in my mind. A guy had an HT which tested out with a DTMF deviation of around 4.5 KHz. The local expert claimed that some of our local systems (on the Evergreen intertie) wouldn't decode properly at much above 2 KHz deviation, and that 1.5 KHz was a good setting. However, most HTs seem to be set significantly hotter than this.

So, the questions are:

1. Is there a spec somewhere as to what the DTMF deviation should be on 2 meters?
2. What is the range recognized by typical commercial repeaters?
3. How does the real world (with multipath, for example) affect this whole issue; that is, in the presence of multipath, is more or less deviation better?

Note that I haven't asked about twist. I'm assuming that would complicate matters significantly...

Just to clarify terms (or confuse the issue if I'm wrong...), I am assuming that when we talk about deviation, we're talking about 1/2 of the peak-to-peak deviation of the carrier caused by the combination of the two tones.

Date: 11 Apr 1993 00:32:16 GMT
From: ucsd.edu!brian@network.UCSD.EDU
Subject: What should DTMF deviation be set to?
To: info-hams@ucsd.edu

Commercial practice that I am familiar with is to set deviation to
4.5 kHz peak voice (including PL if any)
500 Hz subaudible
3.5 kHz for signalling tones, including touch-tones.

No doubt ham practice is something else, just on NIH principles.
- Brian

Date: Sun, 11 Apr 1993 00:03:49 GMT
From: dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!gatech!kd4nc!
ke4zv!gary@network.UCSD.EDU
Subject: What should DTMF deviation be set to?
To: info-hams@ucsd.edu

In article <20360138@hplsla.hp.com> richw@hplsla.hp.com (Rich Wilson) writes:
>I was listening to a conversation on a local repeater yesterday which
>raised some questions in my mind. A guy had an HT which tested out with
>a DTMF deviation of around 4.5 KHz. The local expert claimed that some
>of our local systems (on the Evergreen intertie) wouldn't decode properly
>at much above 2 KHz deviation, and that 1.5 KHz was a good setting.
>However, most HTs seem to be set significantly hotter than this.
>
>So, the questions are:
>
>1. Is there a spec somewhere as to what the DTMF deviation should be
> on 2 meters?
>2. What is the range recognized by typical commercial repeaters?
>3. How does the real world (with multipath, for example) affect
> this whole issue; that is, in the presence of multipath,
> is more or less deviation better?

DTMF was designed to operate over phone lines meeting Bell System standards. Our radios were designed for communications quality speech. The two aren't quite the same and vary from manufacturer to manufacturer.

This is a ticklish subject. The issues are possible clipping in the audio limiter stage of the modulator, and phase shifts in the IF filters. If we stay below 3 kHz with the common radios, we get nice clean unclipped and undistorted tones. As we approach full modulation,

the possibility of clipping and distortion becomes more real. So we normally restrict packet and TT tones to about 3 kHz. A bit of clipping on voice signals adds "punch" and a bit of phase distortion is tolerable in trade for better adjacent channel rejection, but for control tones this distortion can cause falsing. There is no recognized amateur spec for tones, but the rule of thumb is around 3 kHz deviation.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

Date: Sun, 11 Apr 1993 00:11:48 GMT
From: telesoft!garym@uunet.uu.net
To: info-hams@ucsd.edu

References <1993Apr9.011740.17688@telesoft.com>,
<1993Apr9.140121.6210@telesoft.com>, <1993Apr9.212435.10483@telesoft.com>
Subject : STS-56 Element Set (100.61)

STS-56

1	22621U	93	23	A	93100.61115846	+.00060906	00000-0	17653-3	0	105
2	22621		57.0037		167.8988	0004603	270.8271	89.2279	15.92485654	392

Satellite: STS-56

Catalog number: 22621

Epoch time: 93100.61115846 (10 APR 93 14:40:04.09 UTC)

Element set: GSFC-010

Inclination: 57.0037 deg

RA of node: 167.8988 deg Space Shuttle Flight STS-56

Eccentricity: 0.0004603 Keplerian Elements

Arg of perigee: 270.8271 deg

Mean anomaly: 89.2279 deg

Mean motion: 15.92485654 rev/day Semi-major Axis: 6673.4618 Km

Decay rate: 0.61E-03 rev/day*2 Apogee Alt: 298.15 Km

Epoch rev: 39 Perigee Alt: 292.00 Km

NOTE - This element set is based on NORAD element set # 010.

The spacecraft has been propagated to the next ascending node, and the orbit number has been adjusted to bring it into agreement with the NASA numbering convention.

R.A. Parise, Goddard Space Flight Center

Mark T. Severance
Robert Kliman

--

Gary Morris KK6YB Internet: elements-request@telesoft.com
San Diego, CA, USA Phone: +1 619-457-2700
(For a Shuttle Elements subscription email to: elements-request@telesoft.com)
(STS elements and related info are archived, email: listserv@telesoft.com)

End of Info-Hams Digest V93 #446
